

Atty Docket No.: JCLA7737

Serial No.: 10/015,414

REMARKS**Present Status of the Application**

Claims 5-8 remain pending of which claims 5 and 8 have been amended to more explicitly and precisely describe the claimed invention. It is believed that no new matters adds by way the amendments made to claims or otherwise to the application. For at least the following reasons, Applicants respectfully submit that claims 5-8 are in proper condition for allowance. Reconsideration is respectfully requested.

Discussion of claim rejections**Response to Rejection under 35 U.S.C. 112**

1. *The Office rejected claim 5-8 under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention.*

In rejecting the above claims, the Office Action stated that in claim 5, it is believed that applicants unintentionally claims a method programming, as opposed to a method of erasing, wherein hot electrons/holes are generated to inject into the charge-trapping layer through the nitride-tunneling layer. It is understood that in the art that hot electrons or hoholes, and cannot be both electrons/holes, as claimed. Appropriate correction is required to overcome this type of rejection.

In response thereto, Applicants would like to thank the Examiner for pointing out the informality and accordingly amended claim 5. After entry of the above amendments to claim 5, it is believed that the above rejections can be overcome. Reconsideration is respectfully requested.

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2. The Office Action rejected claim 8 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In response thereto, Applicants have amended claim 8 and after entry of the amendments to claim 8, it is believed that the above rejection can be overcome. Reconsideration is respectfully requested.

Response to Rejections under 35 U.S.C. 103

3. The Office Action rejected claims 5-7 under 35 U.S.C. 103(a) as being unpatentable over Jung et al. (US-6,426,897, hereinafter Jung).

In rejecting the above claims, the Office Action stated that regarding claim 5, Jung discloses a method of erasing a non-volatile memory cell using hot carrier injection method (col. 1, lines 50-53), which is similar to the claimed invention except that Jung fails to clearly specify that the hot carriers are injected through the nitride tunneling layer, this feature is however considered common and well known in the memory arts, wherein non-volatile flash memory mandates a nitride layer for charge trapping purposes. Since Jung did not indicate that their method be used specifically for any one particular type of non-volatile memory cell shows that the method is not limited to whether or not the non-volatile memory cell is ONO or SONOS. Therefore, it is considered obvious to one skilled in the art at the time of the invention to realize that the method of erasing a non-volatile memory cell as claimed is included and comprehensible by the disclosure of Jung.

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Applicants respectfully disagree and would like to point out that because Jung substantially fails to specify a nitride tunneling layer (as also indicated by the Office Action), it is clear that Jung cannot meet Claim 5 in this regard.

The Office Action further asserted that this feature is however considered common and well known in the memory arts, wherein non-volatile flash memory mandates a nitride layer for charge trapping purposes. Since Jung did not indicate that their method be used specifically for any one particular type of non-volatile memory cell shows that the method is not limited to whether or not the non-volatile memory cell is ONO or SONOS. Therefore, it is considered obvious to one skilled in the art at the time of the invention to realize that the method of erasing a non-volatile memory cell as claimed is included and comprehensible by the disclosure of Jung.

Applicants respectfully disagree and would like to point out that the above reasoning of the Office Action is not well understood and accordingly request the Examiner to clearly point out why a nitride trapping layer would lead one skilled the art to modify the oxide-tunneling layer of ONO or SONOS type of non-volatile memory with a nitride-tunneling layer.

Applicants would like to particularly point out that it is well known that in a non-volatile memory, the charge trapping layer is clearly for charge trapping purpose and is totally different from the tunneling layer, in that they both function differently, namely the tunneling layer functions to insulate the charge trapping layer from the substrate and also allows hot carriers to penetrate there-through during the write and erase operation. Secondly, it is well known that both ONO (Oxide-Nitride-Oxide) and SONOS (Silicon-Oxide-Nitride-Oxide-Silicon) type of non-volatile memories [use oxide-tunneling layer]. [In other words, the erasure method of Jung

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even though not limiting to either ONO or SONOS, still would not have suggested one skilled in the art to modify the oxide-tunneling layer of ONO or SONOS non-volatile memory with a nitride-tunneling layer to achieve the features of Claim 5]. The advantage of using a nitride-tunneling layer instead of oxide-tunneling layer is that the energy barrier of the nitride-tunneling layer for a hot carrier is lower than that of the oxide-tunneling layer, and therefore the hot carrier injection can be effectively promoted and thus the operating speed can be effectively enhanced. Because Jung substantially fails to teach, suggest or disclose a nitride-tunneling layer as required by Claim 5, and therefore, Jung cannot possibly render Claim 5 obvious.

For at least the forgoing reason, claims 5-7 patently define over Jung and therefore should be allowed. Reconsideration and withdrawal of these rejections is respectfully requested.

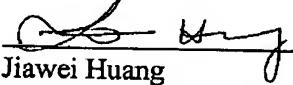
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CONCLUSION

For at least the foregoing reasons, it is believed that all pending claims 5-8 are in proper condition for allowance. If the Examiner believes that a conference would be of value in expediting the prosecution of this application, he is cordially invited to telephone the undersigned counsel to arrange for such a conference.

Respectfully submitted,
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